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January 30, 1995

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

William F. Caton, Acting Secretary
Federal Communications Commission
Room 222 -- Mail Stop 1170
1919 M Street N.W.
Washington DC 20554

**Re: ET Docket No. 94-124 (Use of Radio Frequencies Above 40 GHz for
New Radio Applications)**

Dear Mr. Caton:

As an accommodation to Endgate Technology Corporation, I submit herewith the original and four copies of the enclosed Comments for filing with the Commission in the above-referenced docket.

Kindly date-stamp and return the extra copy of this filing.

If there are any questions about this filing, please call me at the number above.

Respectfully submitted,



Mitchell Lazarus

Enclosures

cc: Douglas Lockie
Endgate Technology Corporation

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Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington DC 20554

JAN 30 1995

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF SECRETARY

In the Matter of)
)
Amendment of Parts 2 and 15 of) ET Docket No. 94-124
the Commission's Rules to Permit) RM 8308
Use of Radio Frequencies Above)
40 GHz for New Radio Applications)

COMMENTS OF ENDGATE TECHNOLOGY CORPORATION

1. Endgate Technology Corporation ("Endgate") hereby submits these Comments in response to the Notice of Proposed Rule Making in the above-referenced proceeding.*

2. Endgate believes that the 40.5-42.5 GHz band can be effectively used for wideband services. The propagation effects and equipment characteristics at 40 GHz are very similar to those at 38 GHz. The characteristics of both propagation and millimeter-wave equipment are conducive to a practical near-term implementation of either broadband local loop communication links or broadcast video distribution.

3. There are differences between the 28 and 40 GHz bands that show up as increased attenuation at 40 GHz during rainfall conditions, slightly higher costs for transmitting and receiving equipment at 40 GHz, and smaller antennas for equivalent gain (or beam width) for 40 GHz systems.

4. Rain attenuation shortens the effective maximum distance of a communications link on the order of 30% during

*/ Use of Radio Frequencies Above 40 GHz, 9 FCC Rcd 7078 (1994).

heavy rain conditions. This loss can be overcome somewhat by increasing transmitter power, increasing antenna size (and/or gain), or by applying signal processing techniques to enhance the received signal.

5. Opening the 40 GHz band would result in slightly higher-cost millimeter wave equipment (as compared to 28 GHz equipment) because, as frequencies increase, the gain per stage of an amplifier decreases. Initially this will result in 40 GHz transmit and receive equipment on the order of 15% to 20% more expensive than equivalent 28 GHz equipment. Over a period of time this price differential will become insignificant in much the same way as the price differential between C-band and Ku-band systems has declined.

6. Because the frequency at 40 GHz is approximately 30% higher than at 28 GHz, physics dictates that antenna dimensions at 40 GHz will be on the order of 30% smaller, for equivalent beamwidths and gain, than at 28 GHz. For commercial systems this size reduction is of little consequence, but for consumer or residential applications the size reduction at 40 GHz is a distinct advantage.

7. As the Commission promulgates rules for the 40.5-42.5 GHz band, Endgate recommends that the EIRP be established at the 50-55 dBW level, similar to that for 28 GHz. This will enhance the value of the spectrum because the data throughput is

directly proportional to the EIRP. The economic impact of bandwidth in communications systems appears to be the same as the economic impact of memory and processing power in computing: More is better.

Respectfully submitted,

Douglas G. Lockie/ml

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January 30, 1995.